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CLAIMS

What is claimed is:

1. A burn resistance and high tensile strength alloy, comprising:
  - about 55 to about 75 weight percent nickel;
  - about 12 to about 17 weight percent cobalt;
  - about 4 to about 16 weight percent chromium;
  - about 1 to about 4 weight percent aluminum; and
  - about 1 to about 4 weight percent titanium.

2. The alloy of claim 1, wherein the nickel content is about 70 to about 75 weight percent.

3. The alloy of claim 1, wherein the cobalt content is about 13.5 to about 16.5 weight percent.

4. The alloy of claim 1, wherein the chromium content is about 6 to about 15 weight percent.

5. The alloy of claim 1, wherein the aluminum content is about 1 to about 3 weight percent.

6. The alloy of claim 1, further comprising about 0.15 to about 0.25 weight percent manganese.

7. The alloy of claim 1, further comprising silicone.

8. The alloy of claim 1, further comprising about 0.01 to about 0.5 weight percent carbon.

9. The alloy of claim 1, further comprising about 0.003 to about 0.009 weight percent boron.

10. The alloy of claim 1, further comprising about 0.02 to about 0.07 weight percent zirconium.

10. The alloy of claim 1, further comprising about 0.02 to about 0.07 weight percent zirconium.

11. A nickel-based alloy, comprising:

about 70 to about 75 weight percent nickel;

about 13.5 to about 16.5 weight percent cobalt;

about 6 to about 15 weight percent chromium;

about 1 to about 4 weight percent aluminum; and

about 1 to about 4 weight percent titanium.

12. The nickel-based alloy of claim 11, wherein the aluminum content is about 1 to about 3 weight percent.
13. The nickel-based alloy of claim 11, further comprising about 0.15 to about 0.25 weight percent manganese.
14. The nickel-based alloy of claim 11, further comprising silicone.  
*50  
0.5*
15. The nickel-based alloy of claim 11, further comprising about 0.01 to about 0.5 weight percent carbon.
16. The nickel-based alloy of claim 11, further comprising about 0.003 to about 0.009 weight percent boron.
17. The nickel-based alloy of claim 11, further comprising about 0.02 to about 0.07 weight percent zirconium.

18. A nickel-based metal alloy comprising:

at least 50 weight percent nickel;

*SP* a threshold pressure at least about 4,000 pounds per square inch; and

*AB* a tensile strength at least about 160,000 pounds per square inch.

19. The nickel-based metal alloy of claim 18, further comprising cobalt, chromium, and titanium.

*SAT*  
20. The nickel-based metal alloy of claim 19, manganese, carbon, boron, zirconium, and silicone.

21. The nickel-based metal alloy of claim 18, wherein said threshold pressure is between about 4,000 and about 12,000 pounds per square inch.

22. The nickel-based metal alloy of claim 18, wherein said tensile strength is between about 160,000 and about 180,000 pounds per square inch.